

A NEW SPECIES OF *ERIGERON* (ASTERACEAE: ASTEREAE)
FROM NORTHWESTERN CALIFORNIA

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ABSTRACT

Erigeron maniopotamicus G.L. Nesom & T.W. Nelson, sp. nov., a member of the *E. eatonii* alliance, apparently is endemic to east-central Humboldt County and immediately adjacent Trinity County, California. It is sympatric with *E. robustior* but it perhaps is more closely related to *E. eatonii* or *E. lassenianus*.

RESUMEN

Erigeron maniopotamicus G.L. Nesom & T.W. Nelson, sp. nov., un miembro del grupo *E. eatonii*, aparentemente es endémico del Este-centro del condado de Humboldt y el inmediatamente adyacente condado de Trinity, California. Es simpátrico con *E. robustior* pero quizás está más cercanamente relacionado con *E. eatonii* o *E. lassenianus*.

In preparation of a taxonomic treatment of *Erigeron* by Nesom for Flora of North America, three collections (HSC) from Humboldt Co., California, appeared divergent from known taxa of the genus. During a study of the *Erigeron eatonii* A. Gray alliance, Strother (1987, by annotation) identified these collections as "*E. decumbens* var. *robustior* vel aff.," but he did not comment on them in a related publication (Strother & Ferlatte 1988). Nesom (2004) noted that they might represent an undescribed entity. One of the three original HSC collections was made by a coauthor of the current report (Nelson), and in order to investigate their identity, he subsequently made two additional collections of the same entity from the same area. These plants occur within the geographic range of *E. robustior* (Cronq.) Nesom but are morphologically distinct. They are out of the known range of any other species of the *E. eatonii* alliance and are here formally described as a distinct species.

Erigeron maniopotamicus G.L. Nesom & T.W. Nelson, sp. nov. (**Fig. 1**). TYPE: U.S.A. CALIFORNIA. Humboldt Co.: Board Camp Mt., off Forest Service Road 49N38, 1 mi from jct with FS Road 1, T4N, R4E, Sec. 28, UTM 450779 E 438981, small, dry, rocky, open meadow, 4860 ft, 18 Jun 2004, T.W. Nelson 9253 and S. Carothers (HOLOTYPE: HSC; ISOTYPES: BRIT, NY, OSC, UC, US).

Differt a *E. robustiore* radicibus palariibus crassioribus, caulibus brevioribus, foliis latioribus, involucri minoribus, et phyllariis elliptici-oblancoelatis vel oblongi-oblancoelatis abrupte acuminatis; differt a *E. eatonii* var. *plantagineo* caudicibus plerumque non ramosis, foliis caulinis non redactis, et



FIG. 1. Habit of *Erigeron maniopotamicus* (isotype, BRIT).

phyllaris elliptici-oblancoelatis vel oblongi-oblancoelatis abrupte acuminatis.

Plants perennial, taprooted (roots [3–]5–8 mm thick); caudex usually simple, rarely with branches to 20 cm long. **Stems** (including peduncles) 2–6(–8), 10–22(–27) cm long, basally ascending to decumbent-ascending, sparsely to densely strigose, eglandular, stems and leaves usually basally purplish. **Leaves** basal and cauline, basal persistent into anthesis, oblanceolate to spatulate-oblancoelate,

3–10 cm long, (3–)5–12(–14) mm wide, strongly to weakly 3-nerved, margins entire, cauline gradually reduced distally or not, usually continuing relatively unreduced to near heads, elliptic-oblancoate to elliptic-lanceolate, sometimes narrowly lanceolate or oblanceolate, hirsute-pilose to weakly pilose on both surfaces, eglandular. **Heads** 1(–4) on peduncles 0.5–1(–5) cm long, held well beyond leaves at peak anthesis, from branches near midstem or slightly more distal; involucre (5–)6–7 mm high, 9–12(–14) mm wide (pressed), phyllaries in 2–3(–4) equal to subequal series, elliptic-oblancoate to oblong-oblancoate, abruptly acuminate, usually each with an orange midnerve, with narrow scarious margins, hirsute-strigose to hirsute-pilose, densely villous at base, eglandular to sparsely glandular. **Ray florets** (16–)21–33, corollas 10–12 mm long, 1.5–2.5 mm wide, laminae white to pinkish or purplish, not coiling (or weakly so) or reflexing. **Disc florets**: corollas 3.2–3.8 mm long, throat not indurate or inflated. **Cypselae** 2–2.5 mm long, 2-nerved, sparsely strigose; pappus of 16–20 bristles 2.5–3 mm long, with a few outer setae ca. 0.1 mm long.

Etymology, habitat, and phenology.—Known only from east-central Humboldt Co. and adjacent Trinity Co., California. The Mad River (whence the epithet) more or less dissects the geographic range of the species. Though the river's name may have been meant to convey the madness (as "angriness") of the torrents and rapids, the epithet here implies that the river is deranged (mad as "crazy"). There apparently is no psychological assessment of the subject, but we like the audible flow of the syllables. Populations of *Erigeron maniopotamicus* occur at elevations of 1350–1500 meters on a tan-colored, rocky, non-serpentine soil sharply distinct from typical regional soils surrounding the sites. The sites are relatively dry and might be described as "barrens" because few other plant species occur there, and they often are bordered by somewhat stunted woods of mixed conifer, mostly Douglas fir. Serpentine outcrops are scattered in the area, especially on ridges, but apparently do not influence the 'erigeron barrens.' Flowering June through August.

Conservation significance.—Because of the limited distribution and few known collections of this species, a more detailed assessment of its distribution and biology would be valuable.

Additional collections examined. **CALIFORNIA. Humboldt Co.:** near Mad River Buttes, Pilot Creek Quad, 40° 42' 15", 123° 44' 41", meadow, 4739 ft, 28 Jun 1980, *Baker 2479* (HSC), *Baker 2499* (HSC), Jack Rabbit Valley, along Swayback Ridge 4-wheel drive road 1 mi S of jct with Forest Service road, Blocksburg Quad, TIN, R5E, NE 1/4 of NW 1/4, Sec. 26, meadow on metasediments, 4900 ft, 10 Jun 1980, *Nelson and Nelson 5395* (HSC); along Swayback Ridge Road, which branches off Forest Service Road 1N08 ca. 1/4 mi past gate, TIN, R5E, Sec. 23, dry open hillside, 4450 ft, 18 Jun 2004, *Nelson 9249* and *Carothers* (BRIT, HSC, NY, OSC, RM, UC, US); Twin Lakes vicinity, Snow Camp and Twin Lakes trip, with Mr. Murphy, frequent locally in gravelly open places, 26 Jun 1951, *Tracy 19581* (UC 223009, photocopy). **Trinity Co.:** Kitten-Pum [Kettenpom] Valley, 26 Jun 1893, *Blankinship s.n.* (UC 87679, photocopy). [Trinity Co. or Humboldt Co.] Mad River, 1 Jul 1893, *Blankinship s.n.* (UC 87680, photocopy).

Erigeron maniopotamicus occurs within the range of *E. robustior*, which is known from Humboldt, Trinity, and Mendocino cos. and is recorded as growing in sagebrush-scrub, glades and meadows, and lower montane coniferous forest, sometimes in seeps and sometimes over serpentine, at elevations of (200–)700–1500 meters. In the range of *E. maniopotamicus*, *E. robustior* is not common—it grows in loamy soil in openings and along edges of moist fir-oak woods and has not been observed in close proximity to *E. maniopotamicus*. No intermediates between *E. maniopotamicus* and *E. robustior* or any other species have been encountered in the present study. Populations of the new species are relatively large (over 200 plants) and are relatively uniform in morphology.

The description of *Erigeron decumbens* subsp. *robustior* Cronq. by Cronquist (1947) (see Nesom 2004 for its treatment at specific rank) probably included measurements of *E. maniopotamicus*, judging from the low ranges of involucre size; one of the specimens that he cited as subsp. *robustior*, *Blankinship s.n.*-UC 87679, is identified here as *E. maniopotamicus*. Our comparisons are primarily drawn from study of collections at NY and HSC. In his review of the present manuscript, John Strother also reviewed collections at UC and sent photocopies of two that are referable to the new species. *Erigeron maniopotamicus* and *E. robustior* are contrasted morphologically in the following couplet.

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| a. | Taproots relatively thick, (3–)5–8 mm wide; stems 10–22(–27) cm long; basal leaves oblanceolate to spatulate-oblanceolate; cauline leaves relatively unreduced to near heads; involucre (5–)6–7 mm high, 9–12 mm wide; phyllaries elliptic-oblanceolate to oblong-oblanceolate, abruptly acuminate _____ | <i>Erigeron maniopotamicus</i> |
| a. | Taproots relatively thin, 2–3 mm wide; stems (15–)25–55 cm long; basal leaves linear to very narrowly oblanceolate; cauline leaves usually reduced or none near heads; involucre 6–8.5 mm high, (12–)14–20 mm wide; phyllaries narrowly oblanceolate to lanceolate, acute-acuminate _____ | <i>Erigeron robustior</i> |

The *Erigeron eatonii* alliance (sensu Strother & Ferlatte 1988) is recognized by the following set of features: taprooted; caudex branches generally slender, plants not caespitose; stems erect or basally ascending to decumbent, sometimes purplish at the base, proximal internodes not elongate; leaves basal and cauline, linear to oblanceolate, (1–)3-nerved; heads commonly more than one. Distinctions among the taxa of ten are subtle but discretely defined geographic ranges give confidence that the morphological differences reflect evolutionary differentiation.

Erigeron eatonii comprises a group of contiguous varieties sometimes intergrading at points of contact (see Strother and Ferlatte 1988 for maps). *Erigeron eatonii* var. *villosus* (Cronq.) Cronq. and *E. eatonii* var. *lavandulus* Strother & Ferlatte are exceptions: var. *villosus* occurs north of all other varieties except var. *lavandulus*, which is sympatric with var. *villosus*, and one or both of these probably is justifiably treated at specific rank. *Erigeron canaani* Welsh occurs

at the southwestern extreme of the range of *E. eatonii* var. *eatonii* and may be better treated at varietal rank within *E. eatonii*. Among other species of the alliance, *E. jonesii* Cronq. and *E. lassenianus* Greene also occupy essentially allopatric ranges; they are discontinuous in morphology from contiguous taxa. The ranges of *E. robustior* and *E. decumbens* are relatively isolated on the western margin the alliance.

There are no sympatric taxa of the *Erigeron eatonii* alliance that appear to have a sister relationship, and the sympatry of *E. maniopotamicus* and *E. robustior* suggests that their relationship also is more distant than "sister." The closest relationship of the new species may be closer to *E. eatonii* itself, perhaps with *E. eatonii* var. *plantagineus* (Greene) Cronq., which is the segment of the species geographically closest to *E. maniopotamicus*. The closest approach of var. *plantagineus* to *E. maniopotamicus* is in the northeast corner of Siskiyou Co. and Shasta Co. (Strother & Ferlatte 1988). The two taxa are similar in sizes of involucre, florets, and cypselae but differ conspicuously in habit, particularly in features of caudex and size and distribution of cauline leaves. *Erigeron maniopotamicus* might be treated at varietal rank within *E. eatonii*, but the nature of its relationship there would be ambiguous, and it is morphologically and geographically disjunct from var. *plantagineus*. The leafy stems of *E. maniopotamicus* are more like those of *E. lassenianus* (which approaches the range of *E. maniopotamicus* in northeastern Trinity Co. and Tehama Co.), and it is possible that *E. maniopotamicus* has genetic elements from that species and from *E. eatonii*. In any case, the choice here of taxonomic rank for *E. maniopotamicus* is admittedly somewhat arbitrary. Morphological contrasts between *E. maniopotamicus* and *E. eatonii* var. *plantagineus* are provided in the following couplet.

- a. Caudex branches commonly present, usually slender; cauline leaves usually strongly reduced in size from the basal, absent or reduced near heads; phyllaries narrowly lanceolate to narrowly oblanceolate, apically acute; pappus bristles 6–12 _____ **Erigeron eatonii**
var. **plantagineus**
- a. Caudex usually unbranched; cauline leaves usually continuing relatively unreduced to near heads; phyllaries elliptic-oblanceolate to oblong-oblanceolate, apically abruptly acuminate; pappus bristles 16–20 _____ **Erigeron maniopotamicus**

To place *Erigeron maniopotamicus* in a broader perspective, the following key distinguishes all of the California taxa of the *E. eatonii* alliance.

1. Involucre 6–10.5 mm high, (12–)14–23 mm wide; phyllaries eglandular.
 2. Involucre 6–8.5 mm high, (12–)14–20 mm wide; disc corollas 3.5–4.5 mm long; cypselae (1.8–)2–3.2 mm long _____ **Erigeron robustior**
 2. Involucre 7–10.5 mm high, (14–)17–23 mm wide; disc corollas 4.4–6.8 mm long; cypselae 4–4.5 mm long _____ **Erigeron eatonii** var. **nevadincola**
1. Involucre 4.2–5.6(–7) mm high, 6–12(–14) mm wide; phyllaries glandular or eglandular.
 3. Phyllaries densely minutely glandular _____ **Erigeron lassenianus**

3. Phyllaries essentially eglandular.
4. Cauline leaves continuing relatively unreduced to near heads; phyllaries elliptic-ob lanceolate to oblong-ob lanceolate, apically abruptly acuminate **Erigeron maniopotamicus**
4. Cauline leaves absent or bracteate near heads; phyllaries narrowly lanceolate to narrowly oblanceolate, apically acute.
5. Caudex branches usually absent or relatively short and thickened; involucre 8–12(–16) mm wide; disc corollas 3.5–5 mm; cypselae 2.8–3.5 mm long **Erigeron eatonii** var. **sonnei**
5. Caudex branches commonly present, usually slender; involucre (9–)11–12(–14) mm wide; disc corollas 3–4 mm long; cypselae 1.8–2.3 mm long **Erigeron eatonii** var. **plantagineus**

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